ABSTRACT

Provided is a method of screening or enriching a sample containing polynucleotides from a mixed population of organisms. The method includes creating a DNA library from a plurality of nucleic acid sequences of a mixed population of organisms and separating clones containing a polynucleotide sequence of interest on a fluorescence analyzer based upon hybridization of a fluorescence labeled oligonucleotide probe to a target sequence in a clone. The separated or enrich library can then be further process by activity based screening or sequence based screening. In addition, the enriched sequence can be compared to a database and to identify sequences in the database which have homology to a clone in the library thereby obtaining a nucleic acid profile of the mixed population of organisms.